

Writing Assignment 2: *Bitcoin*

April 21, 2022

Due: **Fri, May 6, before 4:50pm**
Submit through Canvas (*Turnitin* enabled)
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The purpose of the writing assignment is to help you build confidence in articulating relevant economic arguments about international monetary relations and to provide an opportunity for you to learn how to effectively communicate in writing to interested non-experts. This writing assignment asks you to use basic relationships from the course to assess the cryptocurrency Bitcoin (BTC) and its valuation in U.S. dollars (USD). The assignment also asks you to critically assess the usefulness of those relationships for unconventional currencies.

Readings and Data

Go to the website of the American Economic Association and the article “Bitcoin: Economics, Technology, and Governance” at <https://www.aeaweb.org/articles?id=10.1257/jep.29.2.213>. **Read** the article and make sure you understand the principles of Bitcoin. **Infer** how the supply of Bitcoin evolves over time through “minting” and the “mining” of blocks in the blockchain.

One way to think about the valuation of a Bitcoin in U.S. dollars is to assess its change in value over the past decade or so (Bitcoin started to have meaningful value in early 2011). For this purpose, use the Relative Purchasing Power Parity condition and restate it in a way that relates the expected change in the nominal exchange rate of BTC (E in [USD/BTC]) to the rate of money growth of Bitcoin ($\Delta M^B/M^B$), money demand for Bitcoin ($\Delta L^B/L^B$), and the inflation rate of the U.S. CPI (π). Some of these quantities are quick to find. You can compute the change in the nominal exchange rate of BTC from <https://blockchain.info/charts/market-price?timespan=all>, the rate of money of Bitcoin from <https://blockchain.info/charts/total-bitcoins?timespan=all>, and the U.S. inflation rate from <http://www.usinflationcalculator.com>. What can you infer about the change in demand for Bitcoin?

Another way to think about the valuation of Bitcoin in U.S. dollars is to estimate a plausible value. For this purpose, use the Quantity Theory of Money, which relates the supply of Bitcoin M^B and the velocity of Bitcoin v^B (say in 24h) to the price of a U.S. dollar in terms of Bitcoin P^B (in [BTC/USD] so that $1/P^B = E$) and the volume of Bitcoin transactions is Q^{USD} (in 24h). You can find Bitcoins in circulation M^B at <https://blockchain.info/charts/total-bitcoins> and the Estimated Transaction Volume in USD Q^{USD} (over the past 24h at <https://blockchain.info/stats>). You can compute the velocity of Bitcoin v^B (over the past 24h) as the ratio of BTC sent in the last 24h at <https://bitinfocharts.com/bitcoin> (in BTC) and M^B (in BTC). What is your Bitcoin in dollars $E = 1/P^B$?

Writing

Suppose you are writing to explain Bitcoin valuation to a freshman in economics at UC San Diego. Plan on writing four paragraphs and up to 500 words total. If you need more paragraphs or more words, the cap is not binding. However, if you choose to exceed the recommended cap on length, note that grading will reward concision and penalize redundancy, imprecision, and superfluous information.

In your paper, 1) **write** an opening paragraph that explains what Bitcoin is, as a currency. 2) **Use** both valuation methods above, or if you like another method (related to course material) and online data, to **describe** either the change in the

fundamental USD value of a Bitcoin or your best estimate of a fair USD price of a Bitcoin. Make sure to explain your reasoning. If you need more than two paragraphs to do so, write more than two paragraphs. 3) In a final paragraph critically **assess** the usefulness and limitations of the basic relationships from the course for the valuation of Bitcoin.

Assessment Criteria

We will assess your paper according to the following five main criteria.

Analysis: Your paper organizes evidence to lead to substantive conclusions about the research question and qualifies validity of the analytic approach.

Argumentation: Your paper offers a well crafted and nuanced overall argument; develops the overall argument clearly and logically while remaining consistent; appropriately employs relevant rhetorical appeals to respond to the given objective, materials and audience.

Clarity: Your paper organizes ideas and information in a seamless and logically coherent manner. Your paper uses adequate language for the target audience and skilfully communicates meaning to readers, and is error-free.

Exposition: Your paper presents individual arguments concisely and without redundancy, keeps language precise and includes no superfluous information; your paper clearly reaches the target audience in its language use. Your paper thoroughly uses citations and references.

Conclusion: Your paper's conclusion of the overall argument is clearly stated and demonstrates an understanding of key terms and ideas and their qualification.

Writing Tutor

For assistance during the writing process, the Writing Hub at the UC San Diego Teaching+Learning Commons has arranged for special capacity to assist and advise you on the writing assignment. Seeing a Writing Hub tutor is mandatory, and you receive ten points for seeing a tutor. Please make appointments early by visiting the Writing Hub at the UC San Diego Commons or their web page at <https://ucsd.mywconline.com>. The writing tutor services are open Sunday through Friday, including on evenings. Please see writinghub.ucsd.edu for hours. Appointment times are limited, so book in advance. You do not need to have a late-stage draft for your appointment; you are welcome to work with the tutor on a draft in progress. Consider using the appointment as a way to give yourself accountability for a timely completion of the assignment.

To receive the 10-point credit for the tutor consultation, proceed as follows:

- open the automatically generated email that you receive as confirmation of your tutor consultation;
- save the email in **pdf format**;
- annotate the pdf file with your own comments (using the "Comment" function) and state your implementation of the tutor's advice (such as "I rewrote", "I provide example now", "I added citation", "I prefer to keep my own wording", and the like);
- upload the so **annotated** pdf file to Canvas.

References

Böhme, Rainer, Nicolas Christin, Benjamin Edelman, and Tyler Moore. 2015. "Bitcoin: Economics, Technology, and Governance." *Journal of Economic Perspectives*, 29(2): 213–38.